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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/566,595	06/12/2006	Djamschid Amirzadeh-Asl	DNAG-315	5773

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EXAMINER	
HEVEY, JOHN A	

ART UNIT	PAPER NUMBER
1793	

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06/16/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/566,595	AMIRZADEH-ASL, DJAMSCHID	
	Examiner	Art Unit	
	JOHN A. HEVEY	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *15 April 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *8-21,23-27,30 and 31* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *8-21, 23-27, 30-31* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application

Claims 22 and 28-29 have been cancelled, Claim 12 has been amended. Claims 8-21, 23-27, and 30-31 are pending and presented for examination.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 8-11, 14-15, 23-25, and 30-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amirzadeh-Asl et al. (EP0611740) in view of Auer et al. (DE19725021)

In regards to claims 8-11, the instant claims are drawn to a method of subjecting TiO_2 residue from a sulfate process to a heat treatment and

performing a metallurgical process or preparing a refractory material with the TiO_2 material.

Amirzadeh-Asl et al. teaches the use of TiO_2 residue in the form of powder or molded bodies as a refractory material for improving the durability furnace walls after undergoing a heat treatment at 1000 C (see examples 1-3 of Amirzadeh-Asl). The reference teaches the use of TiO_2 residue from a sulfate process, further comprising iron and optionally components such as CaO, SiO_2, and Al_2O_3 (see examples 1-5).

Therefore, it would have been obvious to one of ordinary skill in the art in view of Amirzadeh-Asl to subject a TiO_2 residue from a sulfate process to a heat treatment and perform a metallurgical process on said treated residue. It would have been further obvious to one of ordinary skill in the art to apply the method of Amirzadeh-Asl to the TiO_2 residue from a sulfate process as taught by Auer et al.

The process as taught by Amirzadeh-Asl is drawn to the treatment and use of a TiO_2 residue; therefore it would be obvious to one of ordinary skill to apply this method to TiO_2 residue formed by any process (see claim 1), such as the sulfate process as taught by Auer, in order to increase the industrial applicability of the method. It would have also been obvious to one of ordinary skill in the art to use solely TiO_2 residue to prepare a refractory material, without adding additional components. One would have been motivated to make such changes to simplify the process (less materials needed), and to increase the refractoriness of the resultant product (see Auer translation page 4).

In regards to claims 14-15, 23-25 and 31, Amirzadeh-Asl teaches where the heat treated TiO_2 residue is charged into a furnace in order to increase the durability of the refractory lining (see rejection above). Amirzadeh-Asl also teaches where the heat-treated TiO_2 residue is used to form cylindrical molded products, which could be used for a tap hole (see example 1 of Amirzadeh-Asl).

In regards to claim 24, the instant claim is drawn to the use of heat treated TiO_2 in a metallurgical process. Amirzadeh-Asl teaches the use of the material to improve furnace walls (see above), which is considered a metallurgical process, as no further description of the requirement is given in the instant claims or specification.

10. Claims 12-13 and 16-21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Amirzadeh-Asl et al. (EP0611740) in view of Auer et al. (DE19725021) as applied to claims 8-11 above, and further in view of Pierce et al. (US2476453).

In regards to claims 12-13 and 16-21, the instant invention requires that the TiO_2 residue comprises 35-70% TiO_2, 5-40% SiO_2, 2-15% of an Fe compound, 1-15% MgO, and 0.5-15% CaO. Amirzadeh-Asl teaches the use of TiO_2 residues comprising in weight%, 51% TiO_2, 23% SiO_2, 5% Fe_2O_3, 6% CaO, and 5% Al_2O_3 (see example 1). The reference further teaches the addition of electrostatic filter ash comprising MgO in addition to other components, but fails

to teach the use of a TiO_2 residue with a composition reading on all of the required ranges.

However, it would have been obvious to one of ordinary skill in the art to use any TiO_2 residue having a similar composition, and that is known to be a good refractory material. Pierce et al. teaches refractory TiO_2 slag compositions comprising for example, 70% TiO_2, 6.35% FeO, 10.95% CaO, 4.22% MgO, and 4.97% SiO_2 (see column 7, lines 30-75). Therefore it would have been obvious to one of ordinary skill in the art to select a TiO_2 composition which overlaps with the instant ranges such as the TiO_2 slag taught by Pierce. One would have been motivated to make such a modification in order to decrease cost and preserve the environment, by reutilizing leftover material (See Amirzadeh-Asl DE).

In regards to claims 26-29, Amirzadeh-Asl teaches where the heat-treated TiO_2 residue is charged into a furnace in order to increase the durability of the refractory lining (see rejection of claim 14 above). Thus, it would have been obvious to one of ordinary skill to apply such a method to the composition as taught by the combination of Amirzadeh-Asl, Auer and Pierce.

Response to Arguments

4. Applicant's arguments filed 4/15/2008 have been fully considered but they are not persuasive. Applicant's arguments fail to comply with 37 CFR 1.111(b) because they amount to a general allegation that the claims define a patentable invention without

specifically pointing out how the language of the claims patentably distinguishes them from the references.

5. Applicant references (DE19830102C1) which applicant believes to be closest prior art. However, as stated in applicant arguments, said reference deals with the heat treatment of TiO_2 residue from a chloride process. The previous rejection teaches the heat treatment of TiO_2 residue from a sulfate process, as required by the instant claims. As applicant merely alleges that applied prior art differs and instead points to applicant submitted prior art, the previous grounds of rejection have been maintained.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to JOHN A. HEVEY whose telephone number is (571)270-

3594. The examiner can normally be reached on Monday - Friday 7:30 AM to 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Jerry A Lorengo/
Supervisory Patent Examiner, Art Unit 1793

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